

DESIGN GUIDELINES FOR JACKING BEAMS

- 1) The temporary jacking system is to be designed at operating stress levels.
- 2) A five percent increase to the dead load beam reaction is required for deck stiffness.
- 3) Bolts shall be ASTM A 325 with the threads included in the shear plane if possible. The connection shall be designed in bearing with the reduced root area. ASTM A 490 bolts are acceptable.
- 4) Minimum stiffener and connection plate thickness shall be $\frac{1}{2}$ ".
- 5) Designers should attempt to minimize the number of different jacking systems for the bridge by designing a system that will work in multiple locations.
- 6) Minimum fillet weld size shall be $\frac{5}{16}$ ".
- 7) Avoid bent connection plates where possible. If the skew angle does not allow placing straight connection plates from the existing stiffener to the web, attach the connection plate full height to the existing web and design it as a stiffener. Place it far enough from the existing stiffener to allow welding the connection plate to the web and still have full bearing under the jacking system.
- 8) The jack stand can only accomodate a jack with a diameter of 6" or less. Most jacks greater than 75 tons will require a different stand.
- 9) The possibility of shifting traffic off of the stringer to be jacked should be discussed with the ADE-Traffic. This would allow designing for only dead load.
- 10) When designing a jacking beam the designer may want to start with the following trial sections:

* LOAD (X)	BOLTS	BEAM	CONNECTION PLATE
$X \leq 35K$	3 - $\frac{7}{8}$ " ϕ A 325	W 12 x 26	$\frac{1}{2}$ " x 9"
$35K < X \leq 45K$	3 - 1" ϕ A 325	W 14 x 26	$\frac{1}{2}$ " x 11"
$45K < X \leq 60K$	4 - 1" ϕ A 325	W 18 x 35	$\frac{1}{2}$ " x 14 $\frac{1}{2}$ "
$60K < X \leq 80K$	4 - 1" ϕ A 490	W 18 x 35	$\frac{1}{2}$ " x 18"

* Load (X) is dead load and live load plus impact at the bolts

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